

REMARKS

Upon entry of the present amendment, claims 1-7 are present in the case. Applicant makes no changes to original claim 1, as set forth above. Claims 2-7 have been added. In view of the foregoing amendments and the present remarks, applicant requests entry of the present Amendment, reconsideration of the objections and rejections of the pending office action and withdrawal of the same, and allowance of all claims present in the case at an early date.

REJECTION OF CLAIM 1 UNDER U.S.C. § 103(a)

Applicant respectfully traverses all of the rejections of claim 1 under 35 U.S.C. § 103(a) and submits the following argument in support of allowance of claim 1. Applicant submits that original claim 1 is in condition for allowance, as discussed below.

In the office action of March 8, 2005, Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over Iverson, U.S. Patent No. 4,685,685, in view of Chandler, U.S. Patent No. 6,213,476. In considering this rejection, Applicant first notes the requirements for making such a rejection. The examiner has the burden of presenting a *prima facie* case of unpatentability, which requires the examiner to produce a factual basis for rejection of the claims under 35 USC § 103. If that burden is met, then the burden of going forward with evidence shifts to the applicant. See, e.g., In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785 (Fed. Cir. 1984); In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). “If examination at the initial stage does not produce a *prima facie* case of

unpatentability, then without more the applicant is entitled to grant of the patent.” In re Oetiker, *supra* at USPQ2d 1444; *see also* In re Rouffet, 149 F.3d 1350, 47 USPQ2d 1453, 1455 (Fed. Cir. 1998).

A rejection for obviousness based on a combination of references requires that there must have been a reason, suggestion, or motivation to lead an inventor to combine those references. Such a suggestion may come expressly from the references themselves, from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem, or from the knowledge of those skilled in the art that certain references are known to be of special interest in the particular field. *See, e.g., In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Laskowski, 871 F.2d 115, 10 USPQ2d 1397, 1398, 1399 (Fed. Cir. 1989); In re Oetiker, *supra* at USPQ2d 1446; Pro-Mold and Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 37 USPQ2d 1626, 1629, 1630, (Fed. Cir. 1996); In re Rouffet, *supra* at USPQ2d 1456 and 1458; Al-Site, Corp. v. VSI International, Inc., 174 F.3d 1308, 50 USPQ2d 1161, 1170 (Fed. Cir. 1999); In re Dembiczak, 175 F.3d 994, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999); Robotic Vision Systems, Inc. v. View Engineering, Inc., 51 USPQ2d 1948, 1954 (Fed. Cir. 1999).

“Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of

success. [Citation omitted.] Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure." [Citation omitted.] In re Vaeck, 977 F.2d 488, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, supra at USPQ2d 1600; see also Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303 (Fed. Cir. 1983); Interconnect Planning Corporation v. Feil, et al., 774 F.2d 1132, 227 USPQ 543, 551 (Fed. Cir. 1985); In re Gorman, 933 F.2d 982, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991); Sensonics, Inc. v. Aerosonic Corp., 81 F.3d 1566, 38 USPQ2d 1551, 1554, (Fed. Cir. 1996); In re Rouffet, supra at USPQ2d 1457; ATD Corp. v. Lydall, Inc., 159 F.2d 534, 48 USPQ2d 1321, 1329 (Fed. Cir. 1998).

Even if a factual finding of the level of ordinary skill in the art has been made, rarely does such a finding itself provide the missing knowledge or prior art to complete the presentation of a case of obviousness. See, e.g., Al-Site Corp. v. VSI International, Inc., supra at USPQ2d 1171. It is insufficient to invoke a high level of skill to provide the necessary motivation to combine cited references in an effort to find the claimed invention as obvious. Rather, the rejection must explain the specific understanding or principle within the knowledge of one of ordinary skill in the art, who does not possess knowledge of the claimed invention, that would motivate such a person to select the references and combine them to make the claimed invention. See, In re Rouffet, supra at USPQ2d 1458 and 1459.

The office action has failed to show (a) that a combination from the two cited references can be formed that would be consistent with the original operation of the apparatus of the main reference, (b) that such a combination would provide the present invention as claimed, and (c) that there is any suggestion or inspiration in either of the references that would lead one to make the combination of parts that the office action relies on for the rejection. In short, the office action has failed to make a *prima facie* case for the rejection of Claim 1.

In addition to the failure of the rejection of Claim 1 under 35 USC 103(a) for lack of a *prima facie* case, applicant notes that the office action also fails to provide prior art that discloses all of the elements of the claim. A fundamental cause for this failure is the fact that neither the Iverson reference (U.S. Patent No. 4,685,685), nor the Chandler reference (U.S. patent No. 6,213,476) disclose a U-shaped seal having an open U-shaped channel and a composite wear surface on an inner diameter wall surface wherein the composite wear surface actually engages and seals a moving machine part. Further, the Iverson reference teaches and requires numerous features which are not required, taught, disclosed or claimed in the present invention, including but not limited to a deformable, annular seal ring requiring the features of a double-apex (Iverson, col. 1, lines 62-63), Y-shaped cross-section (Iverson, col. 1, line 47) having a V-shaped annular groove (Iverson, col. 2, line 43), inclined bottom surfaces in the V-shaped groove and a solid base/stem (Iverson, col. 1, line 47) for use in sealing the annular area between a piston and a curved wall surface of a cylinder bore (Iverson, col. 3, lines 13-14). Applicant strongly objects to the examiner's assertion that the Iverson reference discloses a "u-shaped body." On the

contrary, the Iverson device discloses a Y-shaped body, having a V-shaped annular groove in combination with a solid stem/base. Unlike the seal in Iverson, the present invention power end seal is designed for use in a packing gland of a gear box to seal the radial surface of a connecting or extension rod, not the annular area between a piston and a cylinder wall surface. Further, the present invention power end seal does not require, teach or suggest the features of a seal having a double-apex, Y-shaped cross-section, a V-shaped annular groove, inclined bottom surfaces in the V-shaped groove, or a solid base/stem. Further, the Iverson annular seal ring is required to attach to the piston head and move (reciprocate) in association with the stroking movement of the piston in working combination within the cylinder bore, to effectively seal the annular area “between a piston and a curved wall of a cylinder” (Iverson, col. 3, lines 13-14). Unlike the Iverson device, the present invention power end seal is stationary and contained within a packing gland and does not reciprocate or move in association with the stroking or reciprocating movement of the connecting rod. The application for sealing between a piston and a curved cylinder wall surface requires that the seal be deformable (Iverson, col. 2, line 65) and allow for substantial variation in size in one dimension (Iverson, col. 2, lines 1-2). Moreover, Iverson does not teach, suggest or require the use of composite materials to construct it’s Y-shaped seal, but rather teaches the construction of its seal using a single type of material, i.e., rubber, neoprene, urethane, (Iverson, col. 2, lines 64-68), with no apparent need to offset the effects of deflection, minimizing radial squeeze, reducing heat build up and reducing seal wear, as does the present invention. As pointed out by the examiner, the Iverson reference does not use, suggest or teach a seal having a

composite wear surface to engage and seal a moving machine part, as expressly required and taught in the present invention.

The present invention power end seal, as stated above, does not require, teach or suggest the necessary features of a seal having a double-apex, Y-shaped cross-section, which includes a V-shaped annular groove, inclined bottom surfaces in the V-shaped groove and a solid base/stem, as required in the Iverson reference. The power end seal of the present invention, is used to seal the radial surface of connecting or extension rods used in the gear box of reciprocating pumps, is not interchangeable with a seal used in an annular area between a piston and a cylinder wall surface. Unlike the Iverson seal, the present invention power end seal is stationary and fits within a packing gland of a gear box to maintain a constant seal around a connecting or extension rod as the rod reciprocates back and forth within the inner diameter wall, and in contact with the composite wear surface of the seal, while maintaining sealing contact between the connecting rod and the inner diameter wall surface of the power end seal. Unlike the Iverson reference, the present invention power end seal claims, teaches and requires a U-shaped, circular seal body, having an open, U-shaped channel, an inner diameter wall and an outer diameter wall, wherein the inner diameter wall includes a composite wear surface to withstand a large amount of deflection from connecting rod misalignment, while minimizing radial squeeze around the rod surface and reducing heat build up and seal wear, typically caused by rod misalignment. While the Iverson seal is constructed of a single elastomeric material to provide for substantial variation and deformation to seal an annular area between a piston and a cylinder wall surface, the present invention power end seal is constructed of

a plastic or elastomer filled composite material, i.e., PTFE, bronze filled PTFE, carbon filled PTFE or aramid fiber filled HNBR, which are materials designed to withstand deflection and heat buildup caused by misalignment of the connecting rods, while minimizing seal wear. Further, the present invention power end seal is asymmetrical in shape wherein the inner diameter wall is shorter in height as compared to the outer diameter wall, as required by the configuration of the packing gland of a gear box. The Iverson seal is symmetrical in shape. The present invention power end seal does not require a double apex configuration as does the seal in the Iverson reference (col. 1, lines 62-63). The U-shaped, circular seal body of the present invention power end seal does not require, teach or suggest the inclusion of a solid stem or base as required in the Iverson reference (Iverson, col. 1, line 47). Moreover, the solid stem or base, required in the Iverson seal, used in combination with the Y-shaped cross-section, could not fit in the packing gland of a gear box, and more importantly, could not withstand the deflection caused by the connecting rod, nor prevent against excessive wear and heat buildup, unlike the present invention. The Iverson seal is not intended, nor able to, combat the deflection created by misalignment of the connecting and extension rods, whereas the present invention power end seal is designed to combat this type of deflection. Additionally, the V-shaped annular groove of the Iverson reference teaches away from the U-shaped channel of the present invention, wherein the V-shaped groove of the Y-shaped cross-section requires the use of various inclined bottom surfaces to provide the required lateral flexibility to the seal (Iverson, col. 2, lines 43-51). The present invention power end seal does not

teach, suggest or require the use of any inclined or slanted, inner bottom surfaces, as required by the V-groove of the Iverson seal.

While it is clear that the device taught and disclosed in Iverson is functionally and structurally distinct from the present invention power end seal, the examiner has cited the Chandler reference (U.S. Patent No. 6,213,476) as teaching a seal with a dynamic seal portion made of composite material. As stated above, the examiner has failed to provide any support for combining the Iverson reference (a piston/cylinder seal) with the Chandler reference (a wheel/axle seal used to seal heavy equipment axle bearings) to suggest that the present invention power end seal is, in any way, obvious. Piston seals and wheel axle seals are completely different types of seals, for completely different applications and achieve completely different results.

The Chandler reference is highly distinguishable from the present invention power end seal in that Chandler teaches a wheel axle seal comprised of a rigid annular metal case having an internal, two-piece sealing lip comprised of two dissimilar materials, namely a first PTFE lip edge, and a second non-PTFE lip edge, wherein both lip edges are in sealing engagement with an internal wear sleeve surface, wherein the metal case is used with wheel or axle bearings to seal out various environmental contaminants including, dust, dirt, sand, water, road grit and other contaminants which would be harmful to the wheel bearings. It is important to note as a distinction between the Chandler device and the present invention power end seal, that the PTFE lip insert (34) of the Chandler device only engages an internal non-PTFE wear sleeve surface (40) of the wear sleeve (42) of the flange (52) of the seal (10). Literally meaning that the PTFE lip insert (34) of the Chandler device does not engage or seal a

moving machine part, as does the composite wear surface of the present invention power end seal. The inner periphery wear sleeve surface (46) of the Chandler device, engages the rotating axle/shaft (48) (Chandler, col. 4, lines 13-19). Whereas, the composite portion (20) of the inner diameter wall (16) of the present invention *is* a wear surface, which engages and seals the axial surface of the reciprocating connecting rod (a moving machine part). An additional distinction between the Chandler device and the present invention is that the lip profiles (24, 26) of the present invention power end seal, do not include a PTFE portion, and are one-piece elastomer lips wherein a first lip is formed on an inner diameter wall surface and a second lip is formed on an outer diameter wall surface to seal against external surfaces, as compared to the two-piece, PTFE insert and non-PTFE lip taught and required in the Chandler reference. Moreover, the PTFE wear surface of the present invention power end seal is not a lip edge, but rather a flat, circular, internal wall surface, which has actual contact with the reciprocating, non-rotating connecting rod. Further, the PTFE wear surface of the present invention is designed to reduce the seal wear, heat build-up and radial squeeze caused by the deflection and misalignment of the connecting rod reciprocating within the power end seal of a gear box, and has no application for separating environmental contaminants from internal bearings or other parts, as taught and required in the Chandler reference. Additionally, the Chandler reference teaches and requires a plurality of individual features which are necessary to create its wheel axle seal, including, but not limited to, a rigid, annular, metal case; a plurality of flange portions, an elastic, internal seal member having a two-piece, unitary, primary lip assembly with a common interface, the lip assembly further

including a PTFE lip insert and a non-PTFE lip; an inner wear sleeve surface to engage the two-piece, primary lip assembly; a coil or garter spring to maintain compressive sealing engagement; hydrodynamic pumping flutes; and a secondary annular, internal sealing lip. None of these features are present, nor are they required, in the present invention power end seal. In fact, the above described features of the Chandler device actually teach away from the present invention.

In summation, it is clear that original claim 1 and new claims 2-7 of the present invention are in no way obvious under 35 U.S.C. 103(a) as being unpatentable over Iverson (4,685,684) in view of Chandler (6,213,476). Accordingly, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of original claim 1 and new claims 2-7.

OTHER ART CITED

Additionally, the Examiner has cited Balsells U.S. Patent No. 5,979,904; Collins U.S. Patent No. 2,660,459; Gasper et al. U.S. Patent No. 6,543,784; Fisler, et al. U.S. Patent No. 2,665,151; Fournier U.S. Patent No. 4,511,152; Cezanne et al. U.S. Patent No. 5,511,464; Schwarz et al. U.S. Patent No. 2,465,175 and Gaskill et al. U.S. Patent No. 5,169,160. as prior art made of record and not relied upon, but considered pertinent to Applicant's disclosure. Applicant appreciates the Examiner bring these references to his attention and has reviewed these references. Applicant asserts that these references taken alone or in combination with any of the other cited references, do not foreclose the patentability of the present invention.

DRAWING OBJECTION

Applicant has included herein, an amended replacement drawing sheet with the designation "Replacement Sheet" in the top margin, in compliance with 37 CFR 1.121(d). The enclosed "Replacement Sheet" includes drawing Figures 1-3.

PETITION FOR EXTENSION OF TIME

Applicant herein petitions for an extension of time beyond the shortened statutory period for response of three months in the Office Action dated March 8, 2005. Enclosed herewith is a completed form PTO/SB/22 and the extension fee of \$60.00 for response within the first month after the shortened statutory period. The Applicant qualifies as a small business entity under 37 C.F.R. §1.9(f) and evidence of such has been previously filed

SUMMARY

Because the total number of claims and the number of independent claims for which a filing fee has been paid are not exceeded by the entry of this Amendment, no fee for additional claims is due.

In view of the foregoing, it is respectfully submitted that original claim 1 and new claims 2-7, are allowable. It is believed that this case is now in condition for allowance and such action is respectfully requested.

Serial Number 10/761,041
Group Art Unit 3676

Respectfully submitted,

A handwritten signature in cursive script, reading "D. M. O'Brian". The signature is written in black ink and is positioned above a horizontal line.

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Date: July 6, 2005

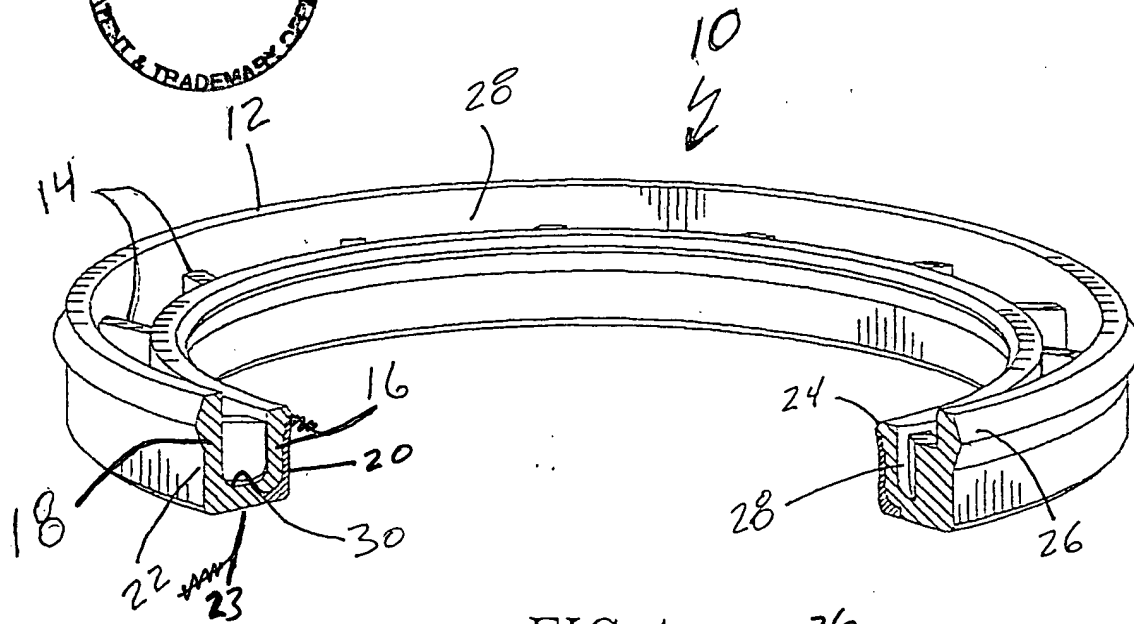


FIG. 1

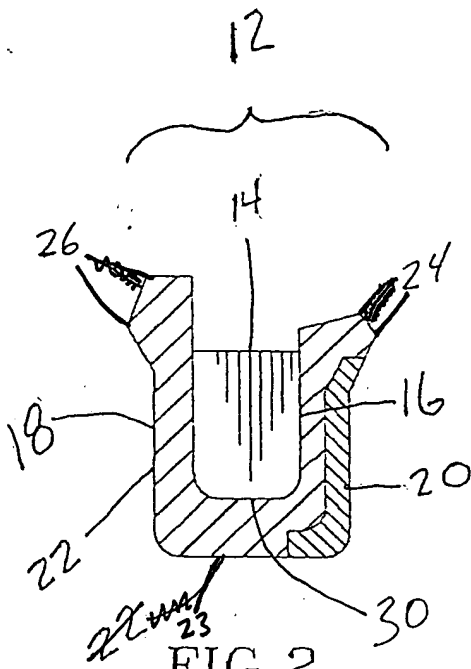


FIG. 2

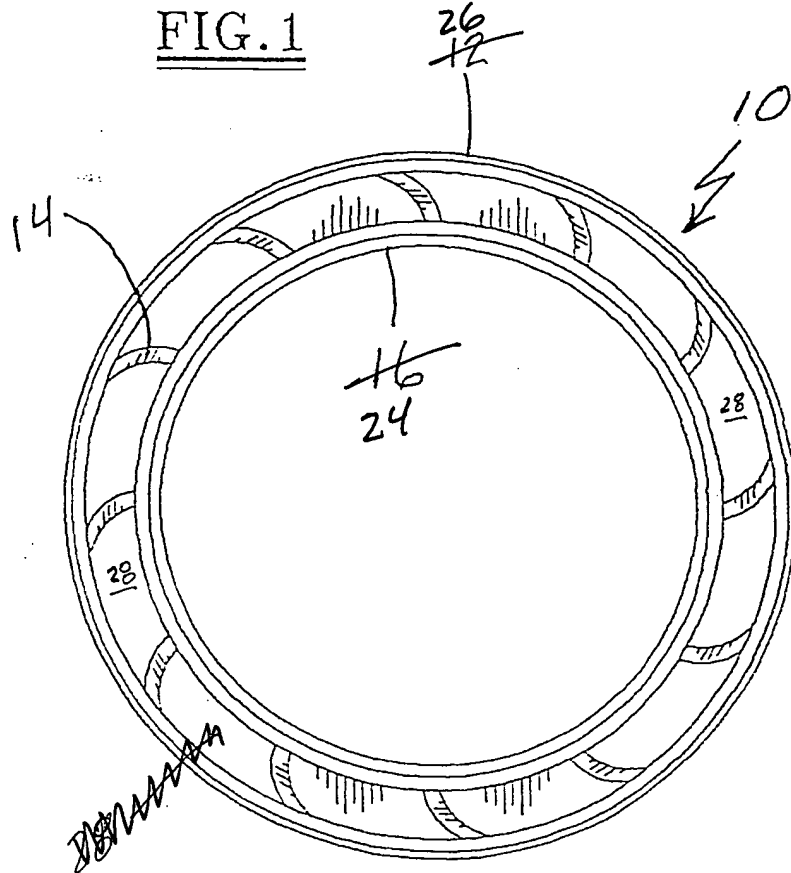


FIG. 3